The State of New Hampshire
Department of Environmental Services

Robert R. Scott, Commissioner

October 2, 2018

Donna Robidoux
Pine Grove MHP Cooperative, Inc.
13 Eastview Drive
Swanzey, NH 03446
pinegrovemhp@myfairpoint.net

Transmitted via Email

Subject: **Water Conservation Plan Approval**
Swanzey – Pine Grove Mobile Home Park (PWS ID#: 2303010)
Water Conservation Plan, NHDES # 004616

Dear Ms. Robidoux:

On August 3, 2018, the New Hampshire Department of Environmental Services ("DES") Drinking Water and Groundwater Bureau received a Water Conservation Plan (the "WCP"), signed on August 3, 2018, for Pine Grove Mobile Home Park, located in Swanzey, New Hampshire. Pursuant to RSA 485:61 and Env-Wq 2101, community water systems seeking permits from DES for new sources of groundwater shall submit a water conservation plan to DES. Based on review of the WCP, DES has determined the WCP complies with Env-Wq 2101, *Water Conservation* rules.

Pursuant to Env-Wq 2101, the Town of Swanzey and the Southwest Region Planning Commission were provided a copy of the WCP, along with other required materials.

DES approves the WCP based on the following conditions:

1. No later than source activation, meters shall be installed on each new and each active, existing water source.

2. Upon source activation, source meters and any other meters measuring water consuming processes prior to distribution shall be read monthly, no sooner than 27 days and no later than 33 days from the last meter reading.

3. All meters shall be installed per the manufacturer's instructions or American Water Works Association standards.

4. Upon source activation, all meters shall be tested and maintained based on the schedule proposed in the WCP.

5. From the date of this approval, the system shall report monthly source production volumes to the DES Water Use Registration and Reporting Program on a quarterly basis. DES has assigned **WUID 21036** to the system. The first quarter report due is **Quarter 4 2018**. The system has 45 days from the end of the reporting period to submit the water use data. The water system shall register as a data provider and utilize the DES OneStop reporting tool to submit the water use data. Instructions for using the tool are

enclosed with this letter. If you have any questions about water use reporting or registering as a data provider, please contact Stacey Herbold by phone at (603) 271-6685 or by email at stacey.herbold@des.nh.gov.

6. The primary operator, Daniel Crosby, is already an authorized data provider for at least one other system. If you retain Daniel Crosby to report to the Water Use Registration and Reporting Program for your system, please contact Stacey Herbold by phone at (603) 271-6685 or by email at stacey.herbold@des.nh.gov to provide authorization.

7. From no later than March 30, 2019 until the date the new pump house is activated or the existing pump house upgrade is completed, night flow analysis shall commence at a rate of twice a year in accordance with the night flow analysis methodology in the WCP.

8. Prior to the date the new pump house is activated or the existing pump house upgrade is completed, the system shall provide the DES Water Conservation Program with a proposal for water loss minimization that is in accordance with Env-Wq 2101.

9. Leaks shall be repaired within 60 days of discovery.

10. From the date of this approval, all new non-metallic pipes installed in the system shall be outfitted with detectable tracer tape or detectable tracer wire, or be GPS located and maintained in a GIS system.

11. By March 30, 2019, a water conservation outreach and education program shall be implemented in accordance with the WCP.

12. Every three years from the date of this approval, a *Water Conservation Plan Ongoing Compliance Reporting Form* shall be submitted to DES documenting how the system has maintained compliance with the WCP. The following records shall be maintained by the water system to include with the report:

    a. A leak log including the date a leak was discovered, the date a leak was repaired, the type of leak (ex. water main, service line, hydrant, valve), the approximate size of the leak (gpm), and the nearest address to the leak.

    b. The title of water efficiency materials distributed and the date of distribution.

    c. Date of installation and replacement of all meters as well as testing and calibration records.

    d. Records of water loss minimization activities (ex. data from biannual night flow analyses and a brief summary of the analyses or leak detection survey reports).

13. Proposed changes to the WCP shall not be implemented unless approved by DES.

The *Water Conservation Plan Ongoing Compliance Reporting Form* may be located by going to the DES website (www.des.nh.gov), clicking on the "A-Z List" in the top right corner of the page, clicking "Water Conservation," and scrolling down to "Forms/Applications."

Please feel free to contact me with any questions at (603) 271-0659 or via e-mail at kelsey.vaughn@des.nh.gov.

Sincerely,

Kelsey Vaughn

Kelsey Vaughn
Water Conservation Program
Drinking Water and Groundwater Bureau

Attached: (2) Water Use Registration Guidance and Water Use Reporting Guidance

ec: Peter Manosh, James Tempesta; Pine Grove MHP Cooperative, Inc.
Daniel Crosby; EAI Analytical Labs
James Vernon; Nobis Engineering
Town of Swanzey
Southwest Region Planning Commission
Shelley Frost, Andrew Koff, Stacey Herbold; DES

WATER CONSERVATION PLAN
Pine Grove Mobile Home Park
August 2018

A community water system seeking authorization for a new source of water must submit a water conservation plan to the New Hampshire Department of Environmental Services (NHDES) for approval demonstrating how the water system proposes to comply with water conservation standards pursuant to Env-Wq 2101, *Water Conservation* rules. Pine Grove Mobile Home Park is an existing small community water system.

Activities outlined in the water conservation plan will be completed by water system personnel under the supervision of a certified water system operator.

I. Introduction

A. Contact Information

1. Name and location of system: PINE GROVE MOBILE HOME PARK, 935 West Swanzey Road, West Swanzey, NH (PWSID #2303010)

2. Owner of system and mailing address: Pine Grove Coop, Board of Directors
Contact: James Tempesta, 13 Eastview Drive, Swanzey, NH 03446

3. Name and mailing address of preparer of water conservation plan:
James H. Vernon, Ph.D., Nobis Engineering, 18 Chenell Drive, Concord, NH 03301 and
Dan Crosby, EAI Laboratory, 33 Whittemore Farm Road, Swanzey, NH 03446

B. System Overview

1. Brief description of the community being served: Pine Grove Mobile Home Park is a cooperatively owned mobile home community comprised of 115 2- and 3-bedroom homes (potentially 5 new homes may be added in the future).

2. Description of water sources, including water sources to be developed for non-potable uses such as irrigation:
Four bedrock wells that were impacted by MtBE have been abandoned. Two gravel packed wells are currently active, and an emergency shallow point well was brought online during the 2016 drought when GPW2 diminished in capacity. Two new bedrock wells have been drilled, tested, and received Small Well Siting Approval. One or both wells may be added to the water system.

3. Name designation of each proposed water source and any existing sources:

- GPW1: Gravel-packed well south of Lat Lane
- GPW2: Gravel-packed well south of GPW1
- Emergency Well: Shallow point well in field north of Anthony Circle
- BRW5/BrE: Potential new bedrock well southwest of Lat Lane, north of GPW1
- BRW6/BrF2: Potential new bedrock well northwest of Diana Lane cul-de-sac

4. Number of connections proposed for each of the following classes:

a) Residential: 120 (115 existing connections, plus 5 potential future connections; 2 additional lots have been discontinued and will not be developed)

b) Industrial/Commercial/Institutional: 0

c) Municipal: 0

5. The water system does not provide water to any consecutive water systems or privately owned redistribution systems.

6. There are no proposed connections that receive more than 20,000 gpd.

7. Please provide the following information based on metered source withdrawal volumes from the last complete year. Please report in gallons.

Year: July 2017 – June 2018
Average daily use (ADU): 26,000 gpd
Lowest ADU in the winter: 15,763 gpd (see note below)
Highest ADU in the summer: 36,650 gpd

Note: Some residents may keep water running in winter to prevent freeze-up. The Coop had all homes inspected by a plumber in 2016. Heat tape was applied to water pipes beneath the homes, if it was not already present. The Coop requires proper skirting around the base of each home.

C. Transfer of Ownership

1. The system ownership is not proposed to be transferred.

II. System Side Management

A. Water Meters

1. Source Meters

a) No later than the source activation date, meters will be installed on each new and any existing water source.

b) An irrigation well is not proposed.

c) Source meter information for each existing source and if known, for each proposed source:

Source Name: GPW1
Source Meter Make: Badger
Source Meter Model: Recordall Disc Meter (Model 70)
Source Meter Size: 1 inch
Source Meter Installation Date: 2003 or 2004
Last Meter Test/Calibration Date: 2003 or 2004

Source Name: GPW2
Source Meter Make: Badger
Source Meter Model: Recordall Disc Meter (Model 35)
Source Meter Size: ¾ inch
Source Meter Installation Date: 2003 or 2004
Last Meter Test/Calibration Date: 2003 or 2004

Source Name: BRW5
Source Meter Make: To Be Determined (TBD)
Source Meter Model: TBD
Source Meter Size: TBD
Source Meter Installation Date: TBD
Last Meter Test/Calibration Date: NEW

Source Name: BRW6
Source Meter Make: TBD
Source Meter Model: TBD
Source Meter Size: TBD
Source Meter Installation Date: TBD
Last Meter Test/Calibration Date: NEW

d) Starting no later than the source activation date, source meters will be read every 30 days.

2. Meter Selection, Installation, and Maintenance

a) All meters will be American Water Works Association (AWWA) certified, with the exception of b), below.

b) AWWA does not have standards for magnetic flow meters. If a magnetic flow meter is proposed, the meter make, model, size and manufacturer specifications will be forwarded to the NHDES Water Conservation program for review. The meter will not be installed until receiving approval for its use from NHDES.

c) The selected size of the meters will be based on projected flow rates.

d) Meters will be installed as specified by the manufacturer, including requirements for horizontal or vertical placement, distance of straight run of pipe upstream and downstream of the meter and strainer installation. If the manufacturer does not supply installation specifics, meters will be installed in accordance with the "Manual of Water Supply Practices M6, Water Meters-Selection, Installation, Testing, and Maintenance" (AWWA, 2012).

e) The following meter testing and calibration schedule or meter change-out schedule will be implemented. If the manufacturer's accuracy warranty extends beyond the schedule below, the meter will be tested or changed-out no later than the warranty expiration date.

Meter Size (inches)	Testing Rate (years)
<1"	10 yrs
1" - 2"	4 yrs
3"	2 yrs
>3"	1 yr

f) A log of the date meters were installed, tested, calibrated, repaired, and replaced will be maintained. Calibration certificates will be kept on file (in the pump house).

B. Pressure Management

1. The design pressures of the system are from 40 psi to 60 psi.

C. Leak Detection and Repair

1. Leak detection methodologies will be conducted in accordance with the "Manual of Water Supply Practices M36, Water Audits and Loss Control Programs" (AWWA, 2016).

2. Leaks will be repaired within 60 days of discovery unless a waiver is obtained in accordance with Env-Wq 2101.23.

3. A log of all leaks will be maintained, including the date the leak was discovered, the date the leak was repaired, the type of leak (ex. service, main, hydrant, valve), the size of the leak (gpm) and the nearest street address to the leak. This information is kept in the pump house log.

D. Water Loss Minimization Approach

1. From No Later than March 30, 2019 (One Year from the Date of Final Source Approval) until the Date the New Pump House Is Activated or the Existing Pump House Upgrade Is Completed:

a) The system will conduct a night flow analysis at least twice a year.

b) The three currently installed distribution meters will be used in the night flow analysis. The three distribution meters are 2" Master Meters.

c) See Appendix B for the night flow analysis methodology.

2. From the Date the New Pump House Is Activated or the Existing Pump House Upgrade Is Completed in Perpetuity (Option 1—To Be Determined and Clarified in an Addendum):

a) The system will conduct a night flow analysis at least twice a year.

b) A distribution meter capable of reading low flows will be installed on the distribution line. The make, model, and size of the proposed distribution meter is a 2-inch Badger M2000 Magnetic Meter.

c) See addendum (submitted after final design plans are selected) for the night flow analysis methodology.

3. From the Date the New Pump House Is Activated or the Existing Pump House Upgrade Is Completed in Perpetuity (Option 2—To Be Determined and Clarified in an Addendum):

a) An acoustic leak detection survey of the entire system will be completed every two years.

(1) Every other year, 100% of the system will be surveyed.

(2) The survey will be conducted by a professional leak detection consultant retained by the system.

b) Acoustic leak detection will be conducted in accordance with the "Manual of Water Supply Practices M36, Water Audits and Loss Control Programs" (AWWA, 2016).

III. Consumption Side Management

A. Educational Outreach Initiative

The following education and outreach initiative will be implemented no later than one year from the date of final source approval.

1. The system will begin distributing water efficiency outreach materials twice a year. One outreach event will include the distribution of educational materials with the Consumer Confidence Report and/or the discussion of water conservation at the Coop's semi-annual meetings. The second outreach effort will consist of posting conservation materials on the system's public bulletin board.

a) The materials distributed will be either NHDES Water Efficiency Fact Sheets located at http://des.nh.gov/organization/commissioner/pip/factsheets/dwgb/index.htm#efficiency or EPA WaterSense materials located at http://www.epa.gov/watersense/. If additional outreach materials are developed, they will be included with the three-year ongoing compliance report.

2. The system will maintain a log indicating how the system has complied with III. A.1., above. The log will include dates the outreach and education actions were taken and what was done.

IV. Reporting and Implementation

A. The water system will submit a form supplied by NHDES once every three years from the date of the water conservation plan approval documenting how compliance with the requirements of Env-Wq 2101, *Water Conservation* rules, is being achieved.

B. The data collected with each night flow analysis from the previous three years, as well as a statement as to whether a leak was suspected or not, will be submitted with the report form in IV.A., above.

C. The water system will report monthly production volumes quarterly to the NHDES Water Use Registration and Reporting Program upon receiving a Water Use ID number from NHDES. Monthly means once every calendar month, but no sooner than 27 days after and no later than 33 days after the previous reading.

I certify that I have read this Water Conservation Plan, understand the responsibilities of the water system as referenced in the plan, and that all information provided is complete, accurate, and not misleading.

Owner Name (print): JAMES TEMPESTA

Owner Signature: James Tempesta Date: 8/3/18

Appendix A
Definitions

Authorized metered consumption: billed metered water plus unbilled metered water.

Community water system (CWS): a public water system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

Consecutive water system: a public water system that buys or otherwise receives some or all of its finished water from one or more wholesale systems for at least 60 days per year.

Final source approval: the date of final well siting approval or the date of issuance of the large groundwater withdrawal permit.

Large community water system: a community water system that serves more than 1,000 persons.

Privately owned redistribution system (PORS): A system for the provision of piped water for human consumption which does not meet the definition of a public water system and meets all of the following criteria:

(1) Obtains all of its water from, but is not owned or operated by, a public water system; (2) serves a population of at least 25 people, 10 household units or 15 service connections, whichever is fewest, for at least 60 days per year; and (3) has exterior pumping facilities, not including facilities used to reduce pressure, or exterior storage facilities which are not part of building plumbing.

Public water system (PWS): a system for the provision to the public of piped water for human consumption, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

Small community water system: a community water system that serves 1,000 people or less.

Source activation date: the date the source is placed into use.

System input volume: the volume of water input to the water supply system after treatment, analysis and storage.

Water balance: the difference between the system input volume and authorized metered consumption.

Water conservation: any beneficial reduction in water losses, waste or use.

Wholesale system: a public water system or an industrial, commercial or institutional (ICI) water user that treats source water and then sells or otherwise delivers finished water to a consecutive water system or privately owned distribution system.

Appendix B
Leak Detection: Night Flow Methodology

1. Distribution Meter

    a. The three distribution meters currently installed in the existing pump house will be used for the night flow analysis.

2. Determining Baseline Flow

    a. Baseline flow will be determined when the system is tight. The system will be considered tight when (this may vary based on the size and age of the system):
        1. A leak detection survey is conducted and all leaks discovered are repaired; or
        2. An initial night flow analysis is conducted and night flow decreases to 0 gpm.

    b. The results of the analysis and the proposed baseline flow will be submitted to NHDES for review.

3. Night Flow Analysis

    a. Night flow analysis will be conducted at least twice a year and no sooner or later than 6 months apart.

    b. Water usage will be recorded every minute for one hour between 1 am and 3 am using the three distribution meters. Prior to the night flow analysis, users of the system will be requested to refrain from using water between 1 am and 3 am on this date. (Night flow analysis will be conducted prior to sprinkler season.)

    c. If the low flow is above the baseline, then flows will continue to be recorded for an additional hour.

    d. If the low flow is more than 2 gpm above the baseline, a leak will be suspected.

        1. All residents will be asked to check their homes for leaks, including running toilets and outdoor spigots. The previous steps will then be repeated in 3 days. If the low flow is still above the baseline, the actions in Steps 2 and 3 below will be taken.

        2. If the leak continues, select portions of the system will be isolated and evaluated by closing valves while monitoring the change in flow as measured by the distribution meters. For example, when one valve is closed, the person in the field operating the valve will then communicate with a second person observing the distribution meters to monitor for a change in the background flow.

        3. No later than two weeks after isolating the leak to a branch of the system, a sub-contractor skilled in acoustic leak detection will be retained and will assist with pinpointing the leak.

    e. Records will be maintained of each night flow analysis, including recorded flows and leak detection results.

Appendix C
Notification Process

Public Notification Instructions

Once a final draft of the water conservation plan is agreed upon by the applicant and NHDES, NHDES will send a signature line to the applicant for addition to the plan along with a summary of the requirements of Env-Wq 2101, *Water Conservation* rules. Within 10 working days of receiving the summary from NHDES, the applicant is required to provide a copy of the water conservation plan via certified mail with return receipt requested to the governing board of the municipality in which a proposed source is located, all municipalities that will receive water from the water system (if any), all wholesale customers (if any) and the regional planning commission serving the location of the proposed source. In most cases, only the municipality and the regional planning commission will require notification. All signed copies of the certified mail return receipts (the green cards) must be forwarded to NHDES along with the final, signed water conservation plan.

Additional Attachments

The applicant must provide the governing boards with a summary of the requirements of Env-Wq 2101, which may be found at http://des.nh.gov/organization/divisions/water/dwgb/water_conservation/index.htm, and request that the governing board amend local site planning requirements to reflect the requirements of Env-Wq 2101 or to promote water efficiency.

Notification of Consecutive Water Systems and Privately Owned Redistribution Systems

Within 5 working days of obtaining final approval of the source from NHDES, the system is required to notify any consecutive water system or privately owned redistribution system receiving water from the system, that pursuant to Env-Wq 2101.13, the systems must implement a water conservation plan and should contact the NHDES Water Conservation Program using the contact information below.

Kelsey Vaughn, Water Conservationist
New Hampshire Department of Environmental Services
Drinking Water and Groundwater Bureau
PO Box 95
Concord, NH 03302-0095
kelsey.vaughn@des.nh.gov
Phone: (603) 271-0659
Fax: (603) 271-0656